

CLAIMS

- 1) An isolated HXT3 hexose transporter or functional fragments thereof with an improved capacity to transport carbohydrates.
2. An isolated HXT3 hexose transporter having an improved capacity to transport fructose with respect to the capacity to transport fructose of a wild type hexose transporter having SEQ ID NO 26.
- 3) An isolated HXT3 hexose transporter according to any one of claims 1-2, having an amino acid sequence which is selected amongst the group consisting of:
 - a sequence derived from SEQ ID NO: 26 and having at least a mutation at a position selected from the group consisting of Gln 206, Leu 207, Met 208, Ile 209, Thr 210, Leu 211, Gly 212, preferably at Ile 209; or
 - SEQ ID NO: 27
- 4) An isolated HXT3 hexose transporter according to claim 3, additionally comprising at least a mutation at a position selected from the group consisting of Met 324, Leu 388, Tyr 389, Ile 392, Glu 414, Gly 415, Ile 449, Leu 471, preferably being Met 324 Ile, Leu 388 Met, Tyr 389 Trp, Ile 392 Val, Glu 414 Gln, Gly 415 Asn, Ile 449 Val or Leu 471 Ile.
- 5) An isolated nucleic acid sequence encoding the HXT3 hexose transporter according to any one of claims 1-4.
- 6) An isolated nucleic acid sequence according to claim 5, having a sequence according to SEQ ID NO 28, SEQ ID NO 29 or a functional homologue thereof.
- 7) Recombinant yeast cell transformed with a nucleic acid according to any one of claims 5-6.
- 8) Process for obtaining a yeast cell with improved fructophilic properties wherein a yeast cell comprising a gene encoding an HXT3 transporter has been altered in such a way that the HXT3 transporter has an improved capacity to transport

fructose, comprising the steps of:

- a. mutating the HXT3 gene and
- b. selecting the yeast cell with improved fructophilic properties.

- 5 9) Yeast cell obtainable by the process according to claim 8.
- 10) Yeast cell according to any one of claims 7 or 9, wherein the yeast is *Saccharomyces cerevisiae*, *S. uvarum*, *S. bayanus*, *S. pastorianus* or *S. paradoxus*.
- 10 11) Use of a yeast according to any one of claims 9 or 10 for fermentation of carbohydrates.